

REMARKS/ARGUMENTS

In the Final Office Action mailed September 1, 2009, claims 1-3 stand rejected. Without conceding the propriety of the rejections, claim 1 has been amended to incorporate the subject matter of claim 3. Accordingly, claim 3 has been cancelled. Applicants has thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action. All the pending claims at issue are believed to be patentable over the cited references.

CLAIM REJECTIONS – 35 U.S.C. §103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negative by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 3 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Masselin (FR 2284665), in view of Hideaki (EP 0846847). Claim 3 has been cancelled. In light of the following remarks, Applicant respectfully submits that claim 1 is allowable.

Initially, Applicant notes that Masselin discloses a method for preparing liquid or the mixture of gas and liquid (page 1, lines 1 to 3), in which the mixture of water and liquid fuel in a certain ratio is passed through an electric field with a certain high frequency in order to improve the combustion efficiency of the fuel, and also a part of the mixture (mainly the liquid fuel) is ionized by the said electric field. More to the point, Masselin discloses the use of **an AC Alternating Current) electric field**. However, in the light of the well-known acknowledge in the electrolysis art, water can only be electrolyzed in a DC (Direct Current) electric field instead of an AC electric field. It can be seen clearly that the object of Masselin is not the electrolysis for water, since the AC electric field is used. Therefore, Masselin and the present invention are different on the following aspects: 1) different objects, in Masselin, the object is to **ionize** the liquid fuel in order to improve the combustion efficiency of the fuel, but in the present invention, the object is to electrolyze water to obtain hydrogen in order to change water into fuel (please refer to the specification); 2) different raw materials, in Masselin, the raw material include liquid fuel such as liquid alcohol oil and synthesized or natural hydrocarbon, gas fuel such as propane and other combustion gas besides water, but in the present invention, only water and ethanol are the materials; 3) different electric fields, in Masselin, the electric field is the AC electric field, but in the present invention, the electric field is the DC electric field. To sum up, Masselin and the present invention are different in the objects and technical solutions.

Hideaki discloses a method for improving the efficiency of an internal combustion engine, particularly, a method for improving the combustion thermal efficiency and reducing carbon deposits accumulation in the combustion systems of diesel, petrol and propane internal combustion engines by changing the ratio of the mass of air to the mass of fuel (please refer to lines 5 to 7 on page 2). The method includes mixing hydrocarbon gas vapors with mixture of

distilled or filtered water, alcohol and turpentine solution to form a gaseous mixture, and passing the gaseous mixture through double or several ionizers with output power ranging from 6000~15000V.D.C. or higher for negatively charging the gaseous mixture (lines 18 to 21 on page 3). In Hideaki, the object is to obtain the negatively-charging and preoxidized hydrocarbon gas by passing the gaseous mixture through two or several ionizers with output power ranging from 6000~15000V.D.C. or higher so as to improve the combustion thermal efficiency and the efficiency of an internal combustion engine (please refer to lines 11 to 12 on page 3). Therefore, the differences between Hideaki and the present invention are as follows: 1) the object is different: in Hideaki, the object is to obtain the negatively-charging and preoxidized hydrocarbon gas by using ionization in order to improve combustion thermal efficiency. In contrast, in the present invention, the object is to electrolyze water to obtain hydrogen in order to change water into fuel (please refer to the specification); 2) the raw materials are different: in Hideaki, the raw materials include hydrocarbon gas, distilled or filtered water, alcohol and turpentine etc. (lines 18 to 21 on page 3), but in the present invention, the raw materials are only water and ethanol; 3) the voltage in the electric field is different, in Hideaki, the voltage in the electric field ranges from 6000~15000V.D.C. or higher, but in the present invention, it is fine as long as the voltage in the electric field is higher than 6V. That is, Hideaki and the present invention are substantially different in the objects and technical solutions.

In contrast, claim 1 recites, *inter alia*, method for converting water into fuel, comprising mixing water with ethanol in a certain ratio by weight, heating and evaporating the obtained mixture to obtain a vapor mixture and passing the said vapor mixture through a DC electric field with a voltage of no less than 6V. That is, this method converts water into fuel. In both

Masselin and Hideaki, hydrocarbon gas vapor is the fuel and the mixture of water and alcohol is used as an additive or a diluent.

In the technical solution of the present invention, the vapor of the mixture of water and ethanol passes through the direct current electric field for being electrolyzed to get the flammable gases including hydrogen and ethanol, which are introduced into the internal combustion engine as energy sources.

As such, no combination of Masselin and Hideaki are capable of achieving the technical solution in the present application. The technical solutions of the present invention and the prior techniques have completely different designs and are also different in the adopted technical means. That is, the technical features in these two technical solutions are not the same, and the technical solution of the present application can reduce the pollution more effectively over the references. Moreover, the device of the present invention has advantages of simple structure and safe operation etc. over the prior devices, and the technical effect of the present application is better than the technical solutions of Masselin and Hideaki.

In view of the foregoing, withdrawal of the 35 U.S.C. § 103(a) rejection to claim 1 as being anticipated by Masselin in view of Hideaki is respectfully requested. Therefore, withdrawal of the 35 U.S.C. § 103(a) rejection of claim 1 as being anticipated by Masselin in view of Hideaki is respectfully requested.

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Masselin, in view of Hideaki, as applied to claim 1 above, and further in view of Davis *et al.* (U.S. 4,565,548; "Davis").

Initially, the Applicant notes that claim 2 depends from independent claim 1 and that claim 1 is believed to be patentable for at least the reasons stated hereinabove. Applicant further notes that any claim that depends from an allowable claim is also allowable. Therefore, Applicants respectfully request that the rejection to claim 2 be removed.

Furthermore, Davis discloses a fuel mixture of gasoline, alcohol and water, wherein the alcohol comprises methanol, ethanol, tert-butanol etc., and also the surfactant represented by formula 1 is added in order to homogenously mix the gasoline, alcohol and water. *See Abstract.* Since the mixture comprises a lot of materials instead of only two materials in the present application, Davis does not illuminate the proportion only between ethanol and water. It is unconceivable for a person skilled in the art to obtain the technical solution of the present application by just applying the ethanol and water disclosed by the totality or any combination of Davis, Masselin, and Hideaki.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests that all the objections and rejections to the claims be removed and that the claims pass to allowance. If, for any reason, the Examiner disagrees, please call the undersigned at 202-861-1629 in an effort to resolve any matter still outstanding before issuing another action. The undersigned is confident that any issue which might remain can readily be worked out by telephone.

In the event this paper is not timely filed, Applicant petitions for an appropriate extension of time. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036 with reference to our Docket No. 56816.1640.

Respectfully submitted,
BAKER & HOSTETLER LLP



Michael D. Graham
Reg. No. 51,750

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Washington Square, Suite 1100
1050 Connecticut Avenue, N.W.
Washington, D.C. 20036-5304
Telephone: 202-861-1500
Facsimile: 202-861-1783